

## REMARKS

The Office Action mailed March 9, 2006, has been reviewed and carefully considered. Claims 3, 5, 7, 14, 16, 18, 25, 27, 29, 36, 38 and 40 have been amended. Claims 1-46 are pending in the application.

In paragraph 2, on page 2 of the Office Action, the claims were objected to because of informalities.

Applicants respectfully traverse the objection to the claims, but in the interest of expediting prosecution have amended the claims to overcome the objections as suggested.

In paragraph 4 on page 2 of the Office Action, claims 1, 2, 4, 6, 13, 15, 17, 23, 24, 26, 28, 34, 35, 37, 39, 45 and 46 were rejected under 35 U.S.C. § 102(b) as being anticipated by Dolivo.

In paragraph 5 on page 4 of the Office Action, claims 3, 5, 7-11, 14, 16, 18-22, 25, 27, 29-33, 36, 38 and 40-44 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant respectfully traverses the rejections. Applicant respectfully submits that the cited reference fails to teach each and every element of the claims.

Dolivo discloses a cosine equalizer. The taps of the equalizer are modified according to an algorithm derived from the fast recursive least squares algorithm as described by Falconer et al.

In contrast, Applicants' invention, as recited in independent claim 1, for example, requires an equalizer configured to equalize a digital signal to provide equalized reproduced signals, wherein the equalizer is implemented using a coefficient learning circuit that adaptively updates coefficients for the equalizer based upon a cosine function. Thus, the taps are updated

using an algorithm based upon a cosine function rather than the algorithm derived from the fast recursive least squares algorithm disclosed by Dolivo.

As indicated in the specification at page 21, line 10-12, the cosine equalizer provides a modified tap update equation to replace the typical least mean square error term,  $x_{k-i}$ , with  $f(a_{k-i})$ , which is based upon the cosine function. In the LMS algorithm  $e(k)=d(k)-y(k)$  is used to measure the difference between the output of the adaptive filter and the output of the unknown system. On the basis of this measure, the adaptive filter using the LMS will change its coefficients in an attempt to reduce the error.

Dolivo teaches using the algorithm derived from the fast recursive least squares algorithm. Applicants' invention, as recited in independent claim 1, for example, requires a coefficient learning circuit that adaptively updates coefficients for the equalizer based upon a cosine function. However, a parameter,  $j$ , may also be included for modifying the phase as recited in subsequent dependent claims.

Accordingly, Dolivo fails to teach, disclose or suggest a coefficient learning circuit that adaptively updates coefficients for the equalizer based upon a cosine function. Therefore, claim 1 is patentable over Dolivo. Independent claims 12, 23, 34, 45 and 46 recite similar limitations and are patentable over Dolivo for similar reasons.

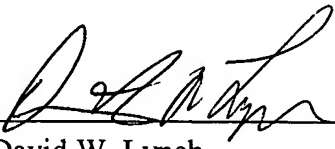
Dependent claims 2-11, 13-22, 24-33 and 35-44 are also patentable over the references, because they incorporate all of the limitations of the corresponding independent claims 1, 12, 23 and 34, respectively. Further dependent claims 2-11, 13-22, 24-33 and 35-44 recite additional novel elements and limitations. Applicants reserve the right to argue independently the patentability of these additional novel aspects. Therefore, Applicants respectfully submit that dependent claims 2-11, 13-22, 24-33 and 35-44 are patentable over the cited references.

On the basis of the above amendments and remarks, it is respectfully submitted that the claims are in immediate condition for allowance. Accordingly, reconsideration of this application and its allowance are requested.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Attorney for Applicant, David W. Lynch, at 423-757-0264.

Respectfully submitted,

Chambliss, Bahner and Stophel  
1000 Tallan Building  
Two Union Square  
Chattanooga, TN 37402  
423-757-0264

By:   
Name: David W. Lynch  
Reg. No.: 36,204